

AMBULANCE

NEWS



VOL.1 No.1

September 1978.



The Official Magazine of the National Ambulance Officers Training School

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AMBULANCE NEWS



September, 1978

The Official Magazine of the National Ambulance Officers' Training School

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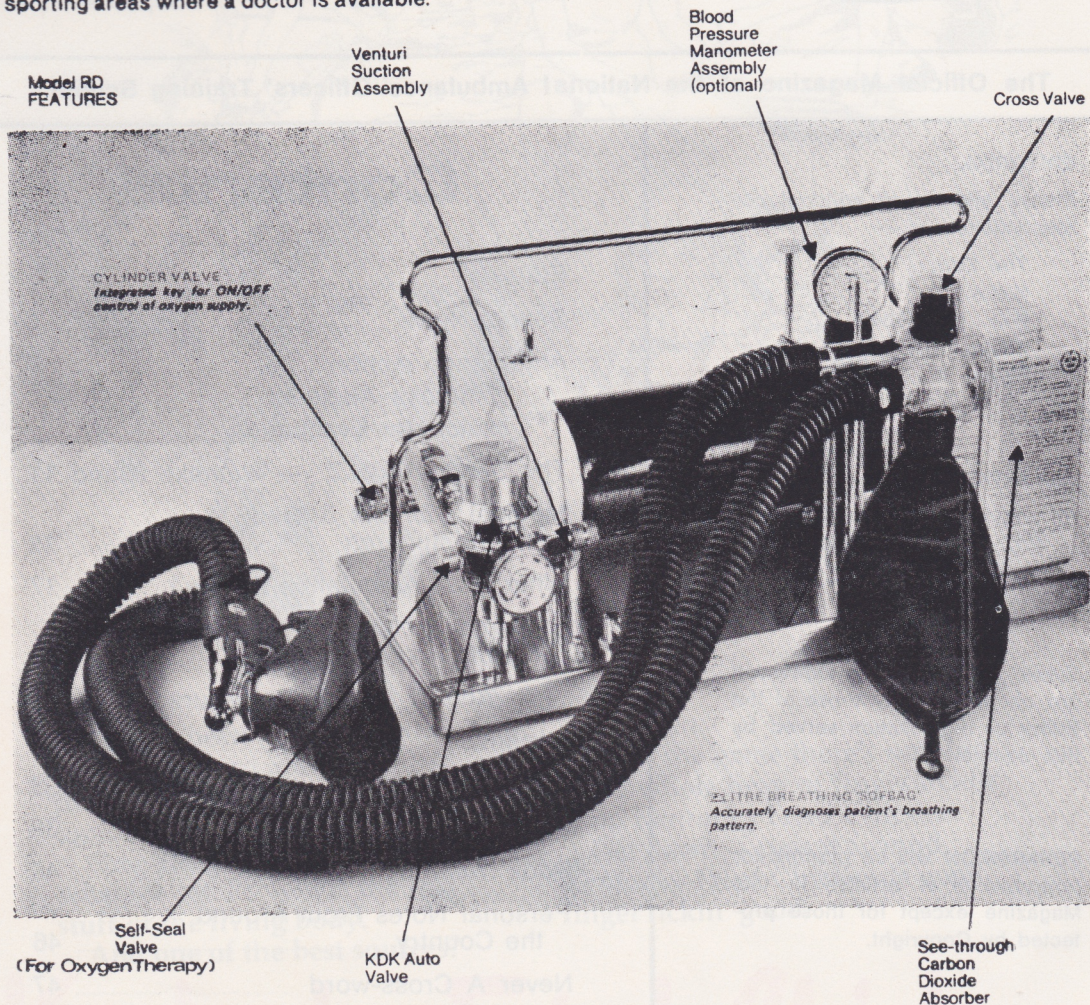
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EDITORIAL

Dear Fellow Officers,

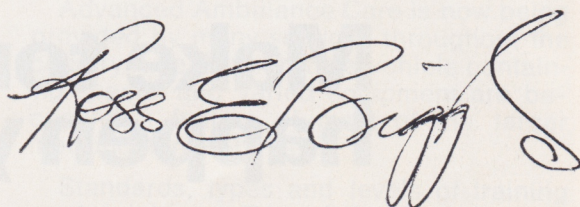
With this first issue of Ambulance News, appearing appropriately on the cover is the new badge to be awarded to all Ambulance Officers who are successful in achieving the required levels in Ambulance Aid as set by the School.

The central symbol of the badge is a blue six pointed figure upon which is laid the snake and rod of Aesculapius. This emblem, which is known as the "Star of Life", is a recognised symbol of emergency medicine. Above the star on the red circle appears the School's motto "Te Ora O Te Whetu". This is translated in English as "Star of Life". The four main stars of the Southern Cross are also found on the badge. The words 'Basic' or 'Advanced' appear above the motto, depending on the type of course the student has passed. The badge will be worn on the right breast of the tunic or shirt.

It is most encouraging to have received so many contributions for this edition of the News Letter. If the Ambulance Service is to progress (and after all the only other alternative is to go backwards) we must improve our communications within the Service. With this objective in mind there will be appearing in each issue articles by Ambulance Officers, both permanent and volunteer, telling of their various services, its operation, problems, etc.

In this issue we present two articles, one from the Christchurch Ambulance Service, the other describing the Waiheke Island branch of the Auckland Service.

ROSS E. BIGGS,
Editor.



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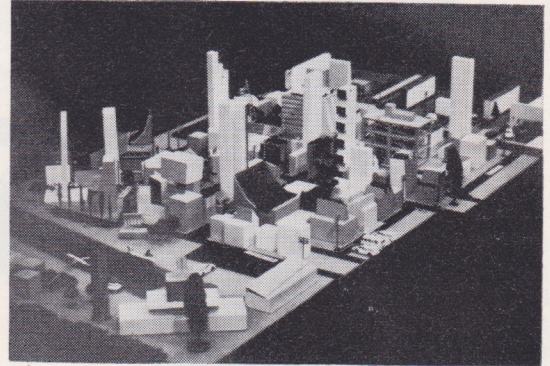
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SCHOOL NEWS

The School has reached its first six months of operation. During this period a total of 207 students have passed through the School in eleven classes. This total includes two Basic Six Week Courses, six two week Refresher Courses and three two week Volunteer Courses.



The National Ambulance Officers' Training School is located at 49 Pitt Street, Auckland. The building was the original Auckland Fire Brigade H.Q. and was built at the end of the last century. Rising behind the medical school is the old fire watch tower which was constructed in 1912. The building is listed as an historic place.

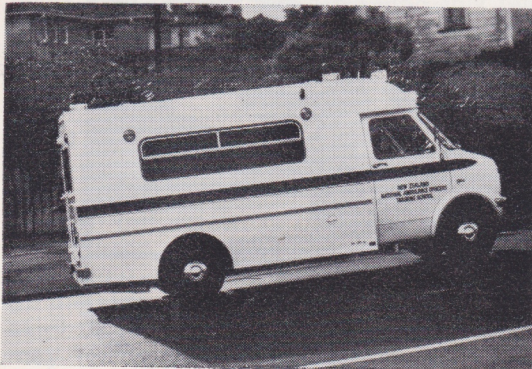


THOMSON CITY

The model city built for the school by Mr J. Thomson of the Auckland Service. It is used for instructing Ambulance officers in all aspects of Major Accident Procedure.

Medical School

The School is fortunate to have the co-operation of the University of Auckland Medical School Pathology Department, who have arranged for each course to visit their Pathology Museum. During these visits a Pathology Registrar from Auckland Hospital comments on the exhibits on display.



Advanced Ambulance Care

Advanced Ambulance Care is now being provided by many services throughout the country. Life Support type vehicle containing special and varied equipment are becoming a feature of most of the larger metropolitan centres.

Standards, types and levels of training are variable. Types of equipment and techniques also differ. The School has been requested by the Ambulance Transport Advisory Board to define Advanced Ambulance Aid, and to set up a central Advanced Training Programme to be run by the School.

Training 58 is the call sign of our training ambulance built on a C.F. Bedford chassis and powered by a 202 Holden motor.

The First Aid



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AMBULANCE ACTION

In the following issues it is proposed to devote space to articles with accompanying photographs of trauma or rescue incidents that you have attended as a member of an ambulance crew. Articles should be approximately 250 words. Unfortunately we will not be able to print all entries received, but will select the two most interesting.

It is intended to have an annual award for the best "Ambulance Action" entry submitted during the year. Due to our publishing deadline we require to have your articles in by 6th November.

In this issue we present two articles from Ambulance Officer Murray Hawkings of Morrinsville Ambulance Service, and Ambulance Officer Mike Martin of Wairarapa Hospital Board's Ambulance Service in Greytown.

RIMUTAKA ACCIDENT

By A/O Mike Martin, Greytown Hospital.

Date: Friday, 30th June, 1978

Incident: Articulated truck over bank

I attended a crash on the bottom corner of the North side of the Rimutakas last Friday, which from start to finish induced a quite remarkable series of events. Firstly, an artic. truck carrying approximately 20 tons of steel ran out of brakes at the top of the hill. The driver had just picked up a hitch-hiker, but after gathering speed for a mile or two told him to jump out. This proved harder to do than it seemed (apart from the guts required) because every time he opened the door it was hitting on passing posts. However he did manage to open it and bailed out. By this time the truck was going approximately 30-35 m.p.h. and considering the hiker landed on the road he was very lucky to only skin his hands and knees. The driver carried on with the truck in an attempt to steer it to the bottom. He failed this task on the last corner, and when he realised this, jumped out at the last second. This must have taken great presence of mind, and certainly preserved his present mind, as 20 tons of steel immediately embedded itself right where his head had been. However the force not only threw the steel forward but sideways right towards where our injured driver is lying. Fortunately the first piece of steel struck the driver a blow on the side of the head which fractured his skull and opened up a nasty wound. This may not appear really fortunate, but as the force of the blow threw the driver out

of the way of the remaining steel, I can assure you it was. He landed in a ditch face down and one other piece of steel landed on his arm trapping him. His head was actually under water (as if he hadn't already suffered enough) and I can only suppose that at this stage he was conscious enough to raise his head whenever the carbon dioxide level in his blood determined he required more O₂.

Another fortunate fact now occurred, as the first car to follow the truck down the hill found the hitch hiker, and set off in hot pursuit of the runaway truck. He found it at the bottom with the driver trapped, and this is where the driver was fortunate for the wifey in the car had just completed a St John First Aid Course and knew not to move the driver as he may have had back injuries. More fortunate still, she took into account the fact that the truck was beginning to smoke and that the driver was finding it more and more difficult to breathe with his head under water. Thus she elected to move him, which in the circumstances I think she was to be commended for. She managed this without undue movement, placed him in the recovery position, covered him with a rug and held some paper tissues against the head wound. Thus by the time I got there a great deal of my work was done, and I think it goes to show how important public education in First Aid is, as I am sure that had this young woman not been present between the time of the crash and our arrival we would have had a D.O.A.



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HELICOPTER EVACUATION FROM MOTOMUHU

By A/O Murray Hawkings

St John Ambulance Association, Morrinsville.

Time 3.30 p.m. Wednesday 5th July.

Weather had been raining, it was cold and a little bit of sunshine was poking through the clouds. Received a call from the Police that a man had rolled his tractor on steep countryside, six miles from Town Dodds Road, Motomuho, last farm on right, and it was believed the man was paralysed.

I picked up my attendant, Mrs Pam Griffin, and we made our way out to the farm. On arrival at the farm we were met by a farm hand and a Traffic Officer. We were informed that we would not be able to get our vehicle up to the patient as the track was too slippery and steep. So with the assistance of Traffic Officer Neil Rogers we took the stretcher, plus back board (full length) and buddy box (First Aid kit) and proceeded to walk up the slippery muddy track. The patient was approximately 1¼ miles from our vehicle on a very steep slope. On coming over a rise we could see our patient in the distance, and a tractor with a tray on the back was coming down to meet us, time 4 p.m. Realising that we would have difficulty in carrying the patient down to the vehicle, we decided to engage the use of a helicopter, and Traffic Officer Neil Rogers returned to his patrol car to make the arrangements. I had suggested to him to turn on the flashing beacons on the vehicles as it would assist the helicopter in locating us. Then loading our gear on to the tractor we proceeded on to the patient. We went as far as we could via tractor, then we clambered down a steep ravine and part way up the other side to where our patient was. Carefully we approached the patient because of the danger of the tractor rolling over and catching us. The patient was free from the vehicle, but still too close to attempt to move him after diagnosing pelvis injuries.

We then rolled the tractor over again so that it was right out of the way (gives an idea how steep it was). Our patient was not in too much pain while immobilised, but was very wet. He had been lying there since 1 p.m., had been found at 3 p.m. and we had been notified at 3.30 p.m. We placed our patient on to the back board, slightly raising his knees, placing rolled up blankets under knees and strapped him firmly on to back board, keeping him warm with blankets. We then carried him to a small plateau approximately 70 to 80 metres away to await the helicopter. The patient was starting to look very pale and feel quite sick so we turned the back board around so he was sloping down hill and an immediate change came over the patient as we treated him for shock.

Finally the helicopter arrived with a doctor on board. The doctor was quite happy with the patient's condition and made arrangements for the helicopter to take my attendant and myself down to our vehicle first and he would follow with the patient who would be strapped into a basket stretcher and on to the skids. They had decided not to take the patient all the way to hospital by helicopter because it would be too cold for him, and it was arranged for us to take him over. Time 5.05 p.m. patient was in ambulance, 5.40 p.m. patient arrived at hospital.

It was found that he had fractures in two places in the pelvis and any mishandling would have made things quite bad. We were assured by Casualty doctors that we had done the right treatment in all ways.

My thanks go to Tutors of the National Ambulance Officers Training School; without their help I doubt if I would have diagnosed or treated the injuries properly, or ordered a helicopter or thought of turning on the beacons to attract the helicopter.



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THE SERVICE IN N.Z.

WAIHEKE ISLAND

by Bryan Nielsen, Ambulance Officer, Waiheke Island

Where: Hauraki Gulf

Area: 36 sq. miles

Mostly steep hilly country

Population: 3300 increasing to 20,000 in holiday periods

Essential Services include:

POLICE: 1 Permanent Officer, 1 Relief Officer — 1 x 4 w/d vehicle (Toyota)

FIRE: 50 Volunteer — 4 vehicles (1 x 4 W/D)

AMBULANCE: 2 Permanent Officers — 1 vehicle (Dodge)

DOCTORS: 2 Resident

DIST. NURSE: 1 Permanent and 1 Relief Nurse — 1 vehicle

T/O: 1 M.O.T. Officer — Approx .10 days month — 1 M/C

A.E.P.B.: Permanent Staff

N.Z.P.B.: Permanent Staff — Approx. 12 vehicles

WAIHEKE ISLAND is among the islands in the Hauraki Gulf is only a mere 20 kilometres from the heart of Auckland City. Most of the resident population are pensioners or retired people who live on the western third of the island. The major part of the rest of the island is a farm block run by the Maori Affairs Department with a few small farms around the coast line. We have 160 miles of road of which approximately 56 miles are tar-sealed, the rest being metal and in some cases mud. The major roads from Matiatia — the Port where the passenger ferries arrive—to Onetangi (10 km — where the pub is), Palm Beach, Rocky Bay are tar-sealed 2 way roads — the majority of others are only 1 way roads.

THE AMBULANCE SERVICE: Two Ambulance Officers are employed by the St John Ambulance Association Auckland and work a rotating 2 week roster to give a 24 hour a day service 7 days a week to the residents of the island. Our work on the island is varied and we have a close liaison with our 2 resident doctors.

As mentioned before most of our patients are elderly so we know what a "Coronary Patient" is, and, unfortunately, we have our fair share of road accidents.

After our initial patient care in the home or on the roadside we transport our patients to one of the 2 doctors. The patients are usually returned to their homes — however — some patients require hospital care and treatment. Auckland Public Hospital is our nearest hospital (approx. 20 kilometres as the crow flies).

During the daylight hours, with the help of Sea Bee Air with their Amphibian Air Craft who are based at Mechanics Bay — approximately 5 km from Auckland Hospital, we can get a patient to hospital care in approximately ¼ hour. If Sea Bee Air are unavailable we can use Rex Air Charter and with their Cessna Aircraft they transport patients from the airstrip at Onetangi and take them to Auckland International Airport — then by Auckland Ambulance to Middlemore Hospital in South Auckland, this taking over all approx. ¾ hour.

The hours of darkness gives us a problem — time. If the weather is clear and very little wind we can use aircraft but the weather in the gulf is not usually this kind to us. After our patient care and doctor's treatment and the doctor has decided that the patient needs hospital care, the patient has to wait 1 hour 10 minutes for the police launch to arrive and another 1 hour 10 minutes for a return journey to Auckland Wharf and 5 miles to hospital by Auckland Ambulance. The best we can do is 2½ hours — usually from the

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time we receive the first phone call until the patient is in hospital 3½ to 4 hours has passed. If the police launch is not available we use the Volunteer Coast Guard who have in the past provided us with an excellent service. So the transporting of patients to hospital care and treatment can cause us some anxious moments especially if we have 10-15 foot seas in the Gulf waters. I will mention at this point that if possible, the patients are stabilized and hold over-night before sending them to hospital the next day.

Our work on the island is varied — medical, accidents at school, home, etc. and as well we attend most fire calls giving our service where required.

Our vehicle — a Dodge — gets a pretty hard time with the conditions — salt spray from every quarter combined with the road conditions one can appreciate the difficulty in maintaining a vehicle. The Auckland Ambulance Headquarters are currently looking to wards improved vehicle and equipment for the island.

We transport on average of 50 patients per month and travel approximately 1500 km per month.

Our object in the Ambulance Service on Waiheke Island is no different to anywhere else in New Zealand.

Hospital care 20 km away — so near yet so far.

Fire companies around the country are trading in their old red trucks for shiny new yellow ones — mainly because of a long-ignored fact: red is hard to see. Studies have shown the traditional fire truck is a hazard to firemen and the public because red is hard to distinguish during the day and even more difficult to see at night. More firemen are killed or injured rushing to fires than fighting them. The fire company that first made the lime-yellow trucks reports that the colour accounts for 75 per cent of its orders. Two recent customers were the United States Navy and the Air Force.

National Geographic Society
News Feature



Tiny marine animals that resemble miniature trees whose branches reach out to catch food have been recovered alive from the mud and ooze under Antarctica's ice-covered Ross Sea. Never before seen by man, the grayish-brown animals were discovered living in the crystal-clear under water environment by National Science Foundation funded researchers. The tiny animals are as yet unnamed. Preliminary studies indicate they are one-celled organisms. They are one to two inches tall, have no eyes and no mouth.

United States Antarctic Programme

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MEDICAL CALL OUT SYSTEM IN CHRISTCHURCH

By A/O Ian Hay, St John Ambulance Assoc., Christchurch

The accident team was first started in Christchurch in 1974 by Dr. Morgan Fahey.

When it was started he was the only doctor in the team, now there are fifteen doctors. They cover all of Metropolitan Christchurch and down the Main South Road about 25-30 miles.

The doctors work in the area in which they live and have their practices. They are notified of an accident when the call is received in the control room. The ambulance is dispatched, and then the doctor in the area of the accident is notified.

Of the fifteen doctors in the team there are only three who have not got radio telephones in their cars. The doctors who have R/T are on our channel.

The doctors arrive at an accident before the ambulance quite often, and they start the treatment. When the ambulance arrives the doctor and ambulance officer work as a team. There is not a situation where the doctor or ambulance officer takes charge. It is team work right from the word go.

The doctors assist ambulance officers when the patients have to have blood volume replacement, or pain relieving drugs administered. This means that when a critically injured patient leaves the scene he is stabilized and his treatment on the way to recovery has started before he arrives at the hospital.

The equipment carried in the doctors cars is supplied by the doctors themselves. This includes, radio telephone, green flashing light, siren, resuscitation equipment, suction equipment, intra venous kite, and pain relieving drugs.

The doctors wear a pair of green combination overalls with the word DOCTOR written across them. This is to identify them at an accident scene.

When the patient is treated at the scene by one of the doctors, a form is filled out with details of what happened, where and when it happened. It also has on it, the injury sites, treatment given and drugs given, and the patient's name, address etc.

This form stays with the patient and it goes onto the patient's file at the hospital. When the patient is discharged a letter is sent to the doctor, and the ambulance officer is notified of the final diagnosis and treatment the patient had in hospital.

All the doctors are on call 7 days a week 24 hours a day.

About two or three times a year a meeting is held between the doctors and senior ambulance officers, to discuss any queries that may come up from time to time.

(SEE ACCIDENT REPORT OVERLEAF)

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ACCIDENT REPORT

SURNAME		FIRST NAMES		SEX	AGE
ADDRESS					
DATE	TIME	TYPE OF ACCIDENT			
LOCATION					
FULLY CONSCIOUS				PUPILS	
RESPONDS TO PAIN				R	L
NO RESPONSE TO PAIN				SMALL	
AT ANY TIME UNCONSCIOUS Yes No How Long				MEDIUM	
AT ANY TIME CONSCIOUS Yes No How Long				LARGE	
				REACT TO LIGHT	YES NO
PULSE VOMIT YES NO				I.V. FLUIDS	
B.P. RESPIRATIONS Normal/Abnormal				TIME STARTED	
SHOCK Nil. Mild. Mod. SEVERE				TYPE GIVEN	
BLOOD LOSS REVEALED Nil. Small, Mod. SEVERE				AMOUNT GIVEN	
				BLOOD TAKEN YES NO	
INTERNAL INJURIES				BURNS	
CHEST					
ABDOMEN					
OBVIOUS FRACTURES				DRUGS GIVEN	
PROBABLE FRACTURES					

LACERATIONS

NOTES

AMBULANCE OFFICER

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WHAT IS AN AMBULANCE OFFICER?

- | | |
|------------------------------------|---|
| Not a Nurse | — But we must make a diagnosis based on history, signs, symptoms; decide a course of treatment to stabilise or maintain the patient's condition, or decide when definitive treatment over-rides the need for diagnosis, i.e. cardiac respiratory arrest. |
| Not a Nurse | — But we apply nursing techniques in ambulance nursing to ensure correct patient positioning and comfort during the journey. |
| Not a Social Worker | — But we are often approached by people suffering hardships or see hardship, such as old people without heating or adequate food, poor living conditions, neglected children, and in consequence advise appropriate Departments. We have to understand the complexities of mental health law. |
| Not a Midwife | — But we on occasions have to deliver babies at home or in the ambulance, or in environments not suitable to us, the mother, or the baby, because Mother Nature dictates when and where. |
| Not a Policeman | — But we must understand road traffic law, the law in relation to restraint, Public Health Act Law in relation to forcible removals. |
| Not a Fireman | — But we must understand and apply rescue techniques in crash situations, knots and lashings, effects of toxic loads, and precautions, the toxicity of our own fire extinguishers in relation to our patients conditions should the need arise to use them. |
| Not a Mechanic | — But we must practice basic mechanical knowledge in the event of breakdown, either to rectify faults or pass back information to mechanical sections. |
| Not a Sociologist/
Psychologist | — But we must deal with people in their sub-cultures in stress situations, which affect attitudes, and know the acceptable standards of behaviour in that particular culture. |
| Not a Manager | — But we manage a situation, plan short term, utilise resources and manpower plant available to achieve a stated objective efficiently, and manipulate the environment to reach the objectives. |
| Not a Physiologist | — But we must be able to identify the effects of G forces upon the injured or defective internal organs, caused by the various changes in direction and braking of the vehicle. |
| Not a Racing Driver/
Chauffeur | — But we must travel at high speed, yet be able to give a slow comfortable ride when required. |
| Not a Clerical Officer | — But we must document all journeys. |

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From time to time we plan to include in the "Ambulance News" an "in depth" study on some aspect of Anatomy or Physiology. The study this month is on the process of internal respiration and reprinted from Ambulance Journal, the official organ of the Ambulance Service Institute, G.B.

UTILISATION OF OXYGEN IN AEROBIC RESPIRATION

by RICHARD STUCKEY, TRAINEE AMBULANCEMAN

In our profession we often have to administer oxygen. Have you ever stopped to ask why? We all know it's because the patient is suffering from a lack of oxygen but what does it do? Where does it go? This paper explains in relatively plain language the process of aerobic respiration in the cell. It describes the organelle responsible for cellular respiration and the actual stages of respiration.

The organelle responsible for cellular respiration (respiration that occurs within a cell) is called a Mitochondrion. This organelle is called quite aptly the "power house" of respiration and is a universal organelle i.e. found in both flora and fauna. The mitochondrion is a small oblong structure shaped rather like a peanut. Inside there are many finger like projections called cristae. These projections are immersed in a liquid or matrix. It is on the membranes of these projections and within the matrix of the mitochondria that aerobic cellular respiration takes place.

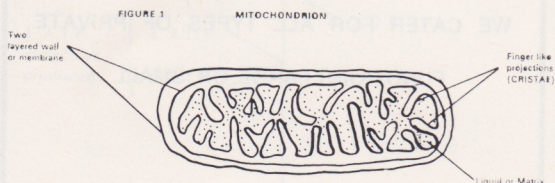
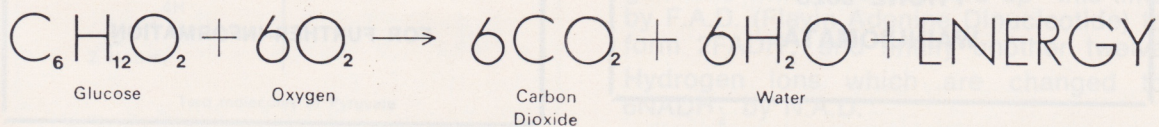


FIGURE 3. EQUATION OF RESPIRATION



The structure in figure 1 is found in all cells. The only variation is the number present i.e. a cell that is very active will be rich in mitochondria and a cell not particularly active will have few. Their relation to other organelles can be seen in figure 2.

FIGURE 2. ANIMAL CELL (generalised)



Having referred to the "power house" and where it is found, what happens in the "power house" to the oxygen and other substrates required for ordinary aerobic cellular respiration?

You may have heard of the respiration equation for the oxidation of carbohydrate (which is the usual substance used in our bodies). This equation is a standard one and is shown in figure 3.

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FOR FURTHER INFORMATION

As can be seen the equation oxygen is present in all of the substances. Oxygen, however, is only present as a single factor at the beginning of the equation and is either combined or mixed with the rest. Therefore, it can be said that oxygen has to be present but does not necessarily take part in cellular respiration until the very end.

The actual respiratory process is split in to three stages:—

- A) GLYCOLYSIS
- B) KREB'S CYCLE
- C) ELECTRON TRANSPORT CHAIN

GLYCOLYSIS takes place in the cytoplasm, see figure 2.

This process can take place in the absence of oxygen and can therefore be called anaerobic glycolysis. It uses one molecule of glucose and changes it to two molecules of pyruvate (pyruvic acid). These two molecules of pyruvate enter the wall or membrane of the mitochondria and stay in the matrix. In doing this the glucose forms many complex substances. It also uses up two molecules of A.T.P. (Adenine

Tri-phosphate) and produces four molecules of A.T.P. thus giving an overall gain of two A.T.P. molecules (A.T.P. is explained later on).

Various other substances are produced. These are: four Hydrogen ions which are immediately on formation "soaked up" by a substance N.A.D. (Nicotinamide Adenine Dinucleotide) to give its reduced form 2NADH_2 and this plays a vital part in the last part of the respiration process.

A diagrammatic representation is given in figure 4.

The next stage is the Kreb's Cycle. In this cycle the two molecules of pyruvate are changed to one molecule of Enzyme (Acetyl Co-Enzyme A). During the change from pyruvate to enzyme another four hydrogen ions are produced which are also "soaked up" by N.A.D. to give 2NADH_2 . The enzyme then forms Citric Acid. After this citric acid goes on to form another eight acids before completing the cycle (which are omitted from figure 5 for simplicity).

FIGURE 4. GLYCOLYSIS

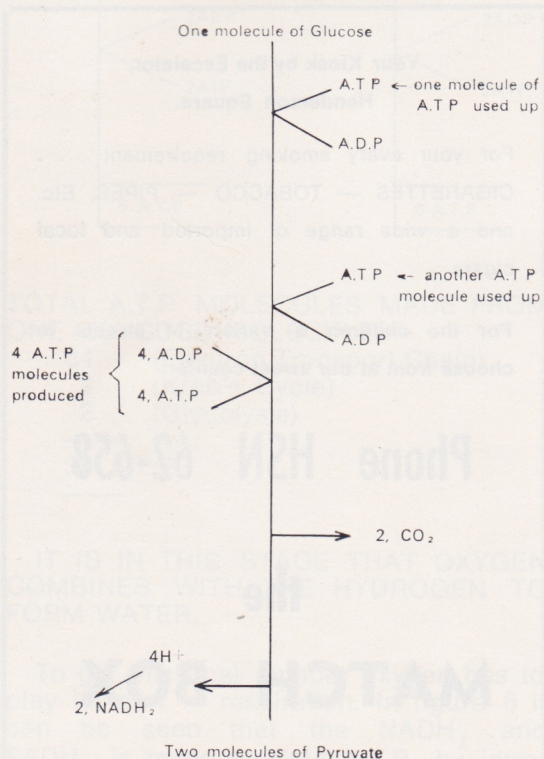
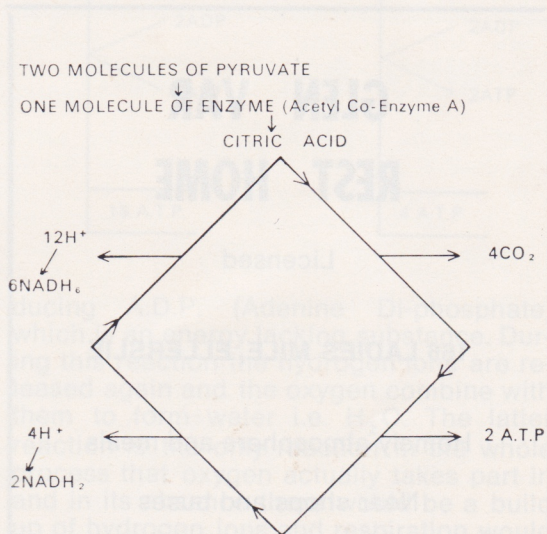


FIGURE 5. THE KREB'S CYCLE



Whilst this reaction is in operation it produces:— four carbon dioxide molecules, two A.T.P. molecules, four hydrogen ions which are "soaked up" this time by F.A.D. (Flavin Adenine Dinucleotide) to form 2FADH_2 and finally another twelve Hydrogen ions which are changed to 6NADH_2 by N.A.D.

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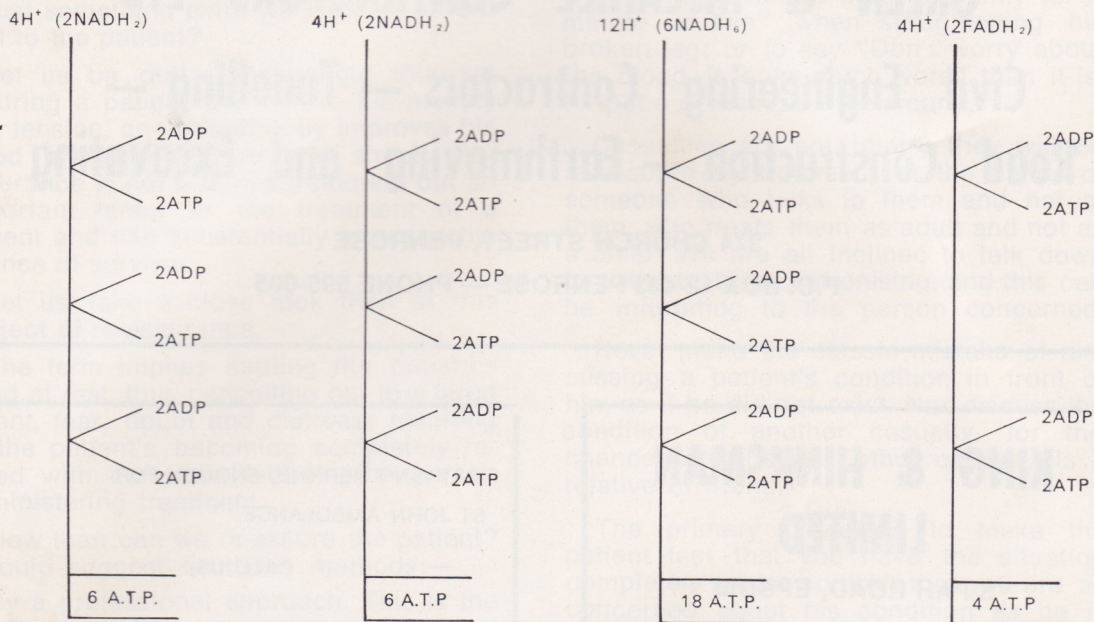
the
MATCH BOX

The process takes place in the liquid matrix of the mitochondria and leads to the last stage of aerobic respiration.

The last stage of respiration is the electron Transport Chain and this, as will be seen, is where oxygen comes in. To start with the three molecules of NADH_2 and the one of FADH_2 are subjected to a series of reactions which cause them to break down and yield another thirty-four molecules of A.T.P. (see in figure 6).

A.T.P. or Adenine Tri-phosphate is just a fancy name given to a very energy rich molecule which is used in every living cell to enable the phenomenon of metabolism to occur. You could say that A.T.P. is to the human body what petrol is to the car. So with the two A.T.P. molecules from Glycolysis, the two from the Kreb's Cycle and the thirty-four from the Electron Transport Chain the net gain from one molecule of glucose is 38 A.T.P.

FIGURE 6



TOTAL A.T.P. MOLECULES MADE FROM ONE GLUCOSE MOLECULE —

- 34 (Electron Transport Chain)
- 2 (Kreb's Cycle)
- 2 (Glycolysis)

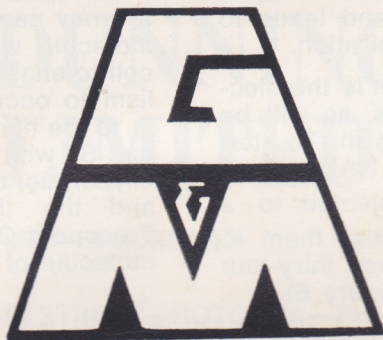
38 A.T.P.

IT IS IN THIS STAGE THAT OXYGEN COMBINES WITH THE HYDROGEN TO FORM WATER.

To get this final number oxygen has to play its part in respiration. In figure 6 it can be seen that the NADH_2 and FADH_2 is made to yield A.T.P. by intro-

ducing A.D.P. (Adenine Di-phosphate) which is an energy lacking substance. During this reaction the hydrogen ions are released again and the oxygen combine with them to form water i.e. H_2O . The latter reaction is the only reaction in the whole process that oxygen actually takes part in and in its absence there would be a build up of hydrogen ions and respiration would cease.

It must be stressed, however, that if oxygen is not present during the Kreb's Cycle then it will not take place. Thus, instead of producing thirty-eight A.T.P. only two are formed, leading indirectly to spasm of the muscle tissue causing cramp seen in its latter stage as cyanosis.



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'... AND OF COURSE, RE-ASSURANCE'

This article is reprinted from training notes issued by the Southern Ambulance Training School, England.

Many of us facing the ordeal of a first-aid exam, and struggling desperately to remember the treatment for shock, have said, (after some hesitation and with considerable relief!) "Oh yes, and of course, reassurance".

But what is re-assurance? — Have we given it much thought? It is important? It is just something extra we can do, or is it vital to the patient?

Let us be quite clear about this, re-assuring a patient will relieve his anxiety and tension, and **this directly improves his blood pressure and relieves shock**. Re-assurance is not a bonus treatment but an important factor in the treatment of a patient and can substantially increase his chance of survival.

Let us take a close look then at this subject of re-assurance.

The term implies settling the patient's mind at rest, thus cancelling out to a large extent, fear, doubt and distress; resulting in the patient's becoming completely relaxed with complete faith in the person administering treatment.

How then can we re-assure the patient? I would suggest by these methods:—

By a professional approach. This is the result of training, experience and smart appearance, which produces a calm confident manner.

By quietly and unhurriedly making an examination of the patient's condition.

By commencing treatment of injuries without fuss or flurry.

By speaking calmly to the patient, addressing him respectfully. To say to a casualty, "You'll be alright mate" is **not** re-assuring, and the use of the words 'cock', 'mate' or other slang expressions is to be deprecated. A casualty, any casualty, is the most important person at the scene of an accident, so address him respectfully as 'sir', this has great psychological value in achieving your object.

Be careful to tell the truth as far as possible; for if you tell a casualty "This is not

going to hurt ...", when he knows darn well it will, you have lost his confidence. Or if you say, "There is nothing to worry about ...", when he can see blood all over the place and his leg tied in a knot, how can you expect him to trust you? And if he loses his trust in you, then his shock will increase. It is much better to say, "This will probably hurt a little, but only for a minute or two" when straightening his broken leg; or to say "Don't worry about the blood, it looks much worse than it is, I'll put a dressing on the wound."

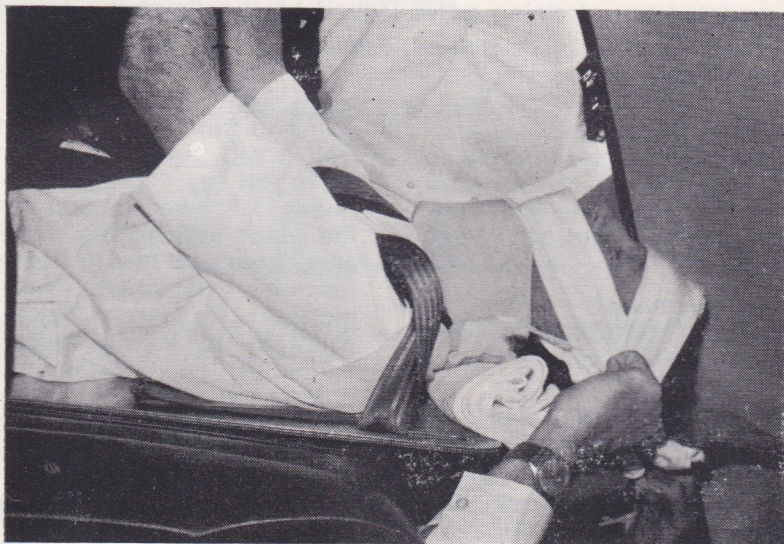
Casualties are not idiots, they will be re-assured by treatment at the hands of someone who talks to them and not at them, who treats them as adult and not as a child. We are all inclined to talk down to patients, to be patronising, and this can be infuriating to the person concerned.

Never make the classic mistake of discussing a patient's condition in front of him as if he did not exist. Nor discuss the condition of another casualty, for the chances are that the other casualty is a relative or friend.

The primary object is to make the patient feel that you have the situation completely under control; that you are as concerned about his condition as he is himself. To talk lightly or flippantly about his injuries will not deceive the patient, he will regard you as a fool and straightaway you have lost his confidence.

Care should always be taken when talking in the presence of an unconscious patient, for they are often aware of what is said. Mr Bryce, the eminent neuro-surgeon tells the story of a man with severe head injuries who, when he had recovered, told him he could remember quite clearly a doctor saying at the time, "I don't give much for his chances". Not very re-assuring!

Don't change horses in midstream. Nothing is more likely to evaporate confidence than taking off a bandage you have just put on, this will make the patient think you haven't a clue.



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Apart from accidents, re-assurance is vital when dealing with any patient, particularly children. They are already frightened by the fear of the unknown. Having to leave their parents, the security of their homes, to go to a strange place called a 'hospital' where they do frightening things. All this can strike terror into a child, sometimes with permanent effects on a child's personality.

My own son lost the power of speech for several weeks after a two-day spell in hospital as a three year old.

A good ambulance man can do a great deal to re-assure a young child, by his manner, attitude and approach.

At the other end of the scale, elderly patients too appreciate kindness and gen-

tleness at the hands of the Ambulance-man. Despite their long experience they are often as frightened as small children at the thought of entering hospital. Here again re-assurance and understanding make a remarkable contribution to the patient's well-being.

To conclude, re-assurance consists not only of what we say, but also how we say it.

Our sincerity and manner of delivery. Our appearance, manner and skill, all combine together to set the patient's fears at rest.

When we hear a patient say subsequently, "I didn't worry any more after the Ambulancemen arrived" then we know that we have succeeded in our purpose.

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HEPATITIS

Towards the end of 1977 the Health Department sent out a communication to Ambulance Services recommending the use of protective gloves to be used by Ambulance Officers when there was a possibility of coming into contact with blood from the patient.

The Health Department letter emphasised the risk of ambulance personnel contracting Hepatitis B, or Serum Hepatitis as it is more commonly known.

The following article on Hepatitis is written by John Henwood, an Instructor at the School. It is important to note that the mortality rate from persons contracting Serum Hepatitis is as high as 10%.

Viral Hepatitis is becoming of increasing importance to those involved in public health care. Although the mortality rate is low, the emphasis is put on the disease owing to its ease of transmission, morbidity and the prolonged period a sufferer must spend away from his place of employment.

There are two types of Viral Hepatitis. Health professionals may contract either form by contact with infected blood via their mucous membranes (eyes, nose, mouth, etc.) or through broken skin (cuts, grazes, etc.)

Type A Hepatitis (Infectious Hepatitis)

The method of transmission for this form of the disease is usually by the ingestion of foods or liquids infected by the virus. However, infection through the respiratory system has not been excluded. Typically, a person acquires the infection from the community and brings it into the home environment where haphazard sanitary habits may cause the disease to be spread throughout the family.

An infected person such as an employee of a restaurant who may handle food during his employment can also be responsible for spreading the disease, as can people who drink sewerage contaminated water, or who eat shellfish from sewerage polluted areas.

The infection is also occasionally contracted through blood transfusion or contact with infected blood or blood products.

Incubation period

The incubation period is estimated to be from 14 to 49 days although 25 days is usually the case.

Signs and Symptoms

During the onset a mild upper respiratory infection with a small rise in temperature may be present, then the patient becomes extremely jaundiced, which at the peak of the disease may become quite intense. Other symptoms include nausea, headache, anorexia, vomiting, abdominal tenderness and a palpable pain over the liver area.

These symptoms tend to subside as the jaundice attains its peak around about ten days after its original appearance.

Treatment

The patient is instructed to stay in bed and is fed a high protein diet. The rest of the family receives hygiene tuition.

Prognosis

Patients usually recover, although in rare cases the disease may deteriorate to acute liver necrosis, and the patient may die.

Type B Hepatitis — (Serum Hepatitis)

This form of the disease may be contracted by injection with contaminated

needles (not an uncommon experience with drug addicts) or infected whole blood or plasma products.

Incubation period

The incubation period is longer than Type A Hepatitis, between two and six months.

Signs and Symptoms

Clinically this disease closely resembles Type A, however the onset is usually slower. The patient may simply lose his appetite and become jaundiced. He may also develop indigestion, abdominal pain, generalised aching, malaise, and general weakness. This form of the disease can be extremely debilitating.

Treatment

The patient is put on complete bed rest until blood tests prove the disease process is complete. A high protein diet is maintained.

Prognosis

The mortality is appreciable, ranging from 0.1% to 10%, depending on the infective dose and the general health of the patient.

Prevention, Control and Community Education

Some ways to reduce the risk of contracting Hepatitis are:—

- (1) Good personal hygiene (especially careful washing of hands)
- (2) Good community sanitation — safe food and water supply
- (3) Use of disposable catheters, needles and syringes.
- (4) Preventative measures such as ensuring that people engaged in high risk contact such as laboratory technicians, medical and nursing staff and ambulance personnel wear protective gloves and take precautions to avoid needle puncture.

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The rescuer simply holds the mask clamped over the victim's face and breathes into it through a short tube. Air is forced into both mouth and nose of the victim.

The mask is transparent which allows the rescuer to check the victim's mouth for lip colour and secretions. And the effectiveness of the technique can be checked because each time the patient exhales the inside of the dome becomes momentarily clouded.

Direct mouth-to-mouth contact, which some people may find offensive particularly where the victim has vomited or has facial injuries, is avoided.

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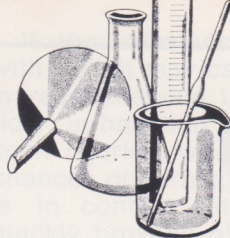
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By Warwick Manning,
Instructor, National Ambulance Officers' Training School

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Description

Calcium Hypochlorite, more commonly known as **H.T.H. Chlorine** or by a variety of brand names, is a chemical commonly found throughout New Zealand. As a chemical its main purpose is that of a disinfectant or as an agent for the purification of swimming pools. Calcium Hypochlorite is a commercial mixture which consists of 70% available chlorine, the remainder being of a bolstre type substance. The nature and properties of the chemical vary according to the nature of the raw materials and the method of manufacture, but generally it is described as a whitish granulated substance which is soluble in water, and has a very pungent chlorine smell. It is manufactured by a process which involves the reacting of chlorine gas and a lime slurry which although sounding simple is a very complex process. The result of this process is a very powerful and unstable chemical which at all times must be treated with CARE.

Where found

It is with concern that medical and Fire Service authorities view the proliferation of this chemical throughout the country. With the advent of home swimming pools householders are buying up large quantities of this chemical to take advantage of lower bulk costs. These bulk supplies are often stored without much thought in sheds, garages, wash-houses, basements, the owners being completely oblivious of the dangers that exist through contamination. In New Zealand over the past twelve months alone there have been a number of incidents involving this chemical, one of which was particularly tragic. Overseas records show, without too much delving, the hazards that exist in transporting or handling this chemical. Between 1967 and 1973 twelve ships either caught fire or had explosions on board while carrying or

discharging this chemical. Apart from millions of dollars in damage, it resulted in ten people being killed.

Hazards

The major hazard is that of fire and explosion, this normally occurring when the chemical is contaminated by another substance, or in some cases evidence suggests that spontaneous ignition occurred within the drum. The following paragraph taken from the September 1975 issue of the "Journal of Hazardous Materials" clearly illustrates the first point:

"It is a well established fact that ignition can occur on contact with a variety of substances. There are, in the literature, accounts of fires starting where unclean scoops were used. It is believed that ignition can follow contact with many easily oxidised chemicals. For example, a drop of glycerine added to a drum causes a fire which propagates through the whole contents. Unsaturated organic compounds or one with a reactive group may act in the same way. Thus a fire may start immediately from a spillage coming into contact with substances of this kind. An important aspect is that once a fire has been started it will spread throughout the contents. It is to be expected that the risk of ignition will be greater if either hypochlorite or the other substance is present in liquid form. Since hypochlorite is soluble in water moisture increases the hazard by bringing the reactants into better contact."

Precautions

As Ambulance Officers, on arriving at the scene of an incident and finding it involves this substance, we should ensure that we do not come in contact with it. We should see that the public is kept well back and that nobody is smoking in the vicinity of the chemical. We should further check that the Fire Service has been called to the incident.

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If the substance comes into contact with skin it may cause severe burns, so it is recommended that the Ambulance Officer, in handling and treating patients for such injuries, wears gloves to reduce the chances of burning himself. Powder which is in contact with the skin should be quickly brushed off and the area flooded with water for at least 15 minutes. Treat as for normal burns and transport to hospital.

If the patient has the chemical in his eye, flush the affected eye or eyes with gentle running water for at least 15 mins. Ensure that if only one eye is involved that the diluted chemical does not contaminate the uninjured eye. Remove any contact lenses. Lightly dress the eye and remove the patient to hospital, advising them of the problem. In the case of the chemical being swallowed, do not make the patient vomit, rather give him large quantities of milk or water to drink and beaten eggs if available. Keep a close eye on the patient's airway as the burning of the tissues will cause severe swelling which may result in the occlusion of the respiratory passages.

If we ourselves, or our neighbours, have this chemical stored at home for any pur-

pose, we should follow these basic simple rules:—

1. Mix only with water, ensuring that in mixing we do not come in contact with other chemicals or containers chemicals have been in.
2. The chemical is a powerful oxidant, contamination of which may lead to a fire which will be of great intensity.
3. Drench any fire with water and cool the surrounding areas.
4. Prevent any burning material such as a lighted cigarette from falling into any container of HTH Chlorine.
5. Dispose of any spilled product by flushing with large amounts of water.
6. Keep in a cool dry place in the original container — **always** replace the cover.
7. Do not roll, drop or skid the container — keep upright.

FINALLY

If you know your neighbour has a store of this in his garage or shed, acquaint him with the facts regarding this chemical. As we have said, it is very unstable, the lives you save may be your own, or those of your children!

The little fellow in the cartoon is the invention of S/O Gordon Hewitt who is based at the Western Districts, Henderson Station of the Auckland Ambulance Service.

His name is Kode II and will be appearing regularly in our magazine.

(Incidents to which an ambulance in the Auckland Service is despatched with all warning devices activated are classified as "Code 2" incidents).



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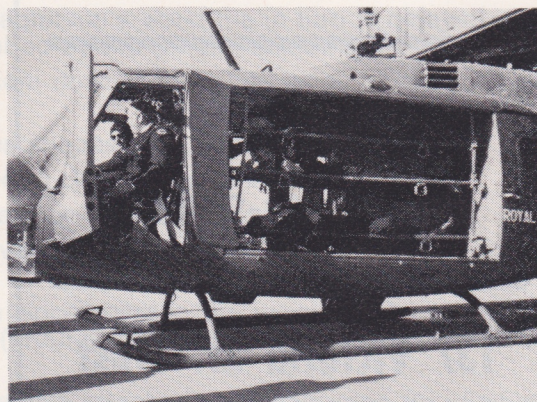
N.O.A.T.S. Students at the six-week course at R.N.Z.A.F. Base Hobsonville



In many situations the helicopter is an invaluable asset to the Ambulance Service, especially when it is necessary to transport patients from remote and difficult areas. In view of the role of the helicopter in the Ambulance Service as part of the basic six week course, students visit the R.N.Z.A.F. Base at Hobsonville for instruction and familiarisation on the role of the helicopter in rescue and recovery.



Students listen intently as a Base lecturer speaks to students during a six-week course at R.N.Z.A.F. Hobsonville.



Helicopter "crew" Jon Jensen and Doug Third of Auckland. Patients (probably suffering "pre examination collapse syndrome") from the top: Murray Hawkings (Morrinsville), Sid Johnson (Auckland), Mike Martin (Greytown).

NIGHT TROTTING NIGHT TROTTING

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ROPES

By Ambulance Officer S. Wilson, Christchurch

Rope Manufacture

Natural fibre rope is composed of fibres from any one of several variety of plants, Cotton, Flax, Hemp, Manilla etc. are natural fibres.

The fibres are first cleaned, then receive a series of combings with the objective of arranging the fibres in parallel order. The fibres are then known as Slivers.

Slivers are spun into yarn, yarns are twisted together to form strands, either by special machinery or manually on a Rope-Walk. Finally the strands are 'laid up' to form the finished product.

Synthetic fibre ropes are made in the same way, except that no cleaning or combing is required and the whole process is done by machinery.

General Terms in Use

LAY — The pitch of one complete turn of a strand measured in a straight line, parallel to the axis of the rope.

ROPE — The ultimate product when three or more strands are laid up and the circumference is not less than half an inch. Delivered in coils (or on drums) of 150 metres average length.

LINE — Rope cut to specific lengths for specific purposes e.g.: Rescue Line, Guide Line, Towing Line, Life-Line, Heaving-Line . .

SIZE — The size of natural fibre rope is measured round the circumference. Synthetic and Wire rope is measured across the diameter.

STANDING PART — That part of the rope or line which is not used in forming a knot, bend or hitch. Takes the load.

RUNNING END — The free end of the rope/line — used in tying a knot, bend or hitch.

BELAY — An anchor point, the securing of a safety line to an anchor point.

LIVE BELAY — Safety line taken around a person's waist (he in turn is belayed to an anchor point) and paid out or taken in as required by the person climbing.

ABSIEL — (Rappel) — A controlled descent down a rope/line using body friction or mechanical devices.

DESCENDEUR — Metal devices of various shapes used in Absieling.

ASCENDEUR — Mechanical devices used to climb ropes/lines.

TRAVERSE — Moving horizontally along a face or slope.

WAIST LOOP — Length of rope or tape wound around waist to which safety line is attached.

SIT-SLING — A form of harness which encompasses the waist, thighs and which spreads the shock weight of a falling climber (around the pelvis as opposed to the waist when only using a Bowline).

PRUSSICK — A method of using short slings attached to a main-rope for climbing, or attaching a safety line (can jam very tight).

PEMBERTHY — A hitch used in preference to above for the same purpose. Does not jam tight in use.

WHIPPING — Securing the ends of natural Fibre Rope to prevent fraying. (Heat sealing is used for Artificial Fibre rope)

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ROPE PROTECTORS — Short 'spirally cut' lengths of hose (Plastic or Rubber) used to protect ropes/lines when used on sharp window sills or rocks.

BIGHT — An open loop in a rope/line.

HAUL — The act of pulling on a rope/line.

PAYING OUT — To ease off or slacken a rope/line.

HALF HITCH — A closed loop of rope/line.

KARABINER — A metal snap link used in climbing to attach/secure climbing ropes to harness, tie-backs, slings etc.

TIE BACKS — Short lengths of rope used as belays.

SLINGS — Loops of varying lengths, used in Prussicking or as Tie Backs.

SHORT LINES — Usually of 8 mm Diam.; and 3 m in length.

RESCUE LINES — Usually from 30 to 61 m in length.

CHAIN SHORTENING — Method of shortening a line in such a way that it remains kink-free and is ready for use.

Selection of Materials

Although Hempen ropes are still favoured by some veteran climbers, artificial fibre ropes are preferred by most people, because of their superior strength, elasticity and high breaking-strain. For instance, Nylon has about twice the strength of Hemp, is rot-proof, impervious to water and unaffected by freezing. Conversely, it weakens and may even melt if subjected to high temperatures or excessive friction. As it is possible to guard against such conditions, these disadvantages need not be regarded too seriously.

As Nylon is much stronger than natural fibre, there may be a tendency to select a smaller diameter rope from which to cut Rescue Lines. Think carefully though — small diameter lines are more difficult to handle, particularly when one's hands are wet or muddy, under certain conditions proving virtually useless.

A much preferred size would be 16mm, giving not only better handling characteristics but a higher breaking load and consequently a higher Safe Working Load.

Finally, Nylon under load will stretch up to 40%, a good shock absorber when falling off a mountain perhaps but not good when strict control is required when manoeuvring a patient on a cliff-face or steep hillside. Consider using Terylene or Ulstron, the latter being light enough to float on water and has virtually no stretch.

Any Climbing Hardware included in a Rescue Kit should also be chosen carefully, perhaps with the help of a member of the 'Federated Mountain Clubs' and obtained from reputable dealers in mountain equipment.

SOME CAUSES OF ROPE DETERIORATION

Abrasion

Caused when lowering lines over rough window sills, coping stones, rocks etc.

Rotting

To prevent natural fibres rotting, wet lines should be dried naturally, hung in a warm ventilated room from wood pegs or wooden beams. Never on nails or metal spikes.

Care should also be taken to keep ANY rope away from oils, grease, paint, acids and alkalies as these will also contaminate and lead to fibre deterioration.

Heat

Excessive heat causes fibres to become brittle (Natural fibres) or melt (Synthetic fibres) with subsequent failure under load.

Kinking

Tends to draw fibres apart and weaken them, unnecessary strain is caused in a kinked line, or sharply bent line under load.



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RECOMMENDED STANDARD TESTS

Rescue Lines should be tested on acceptance, after use at an incident and before use on rescue practices. Inspect quarterly when being stored.

Visual Test

Examine for broken yarns, melting (artificial fibres), internal chafing and any other sign of deterioration (Musty smell and/or discolouration of natural fibres). Check also any whippings for fraying or looseness.

Weight Test

Before use on practices and after use on incidents. Secure one end of the line to a fixed object such as a tree or post, in such a manner that the majority of the line will be subjected to the full test.

Six men of average weight, spaced equidistant along both sides of the line, the last man taking one turn about his waist, apply a steady pull by leaning back and putting all their weight on the rope in turn until all are subjecting the line to their combined weight. This is maintained for at least 20 seconds then the men successively release their pull, reverse the rope and repeat the test in order that both ends of the line are tested fully.

Calculation of Safe Working Loads

(N.B.: As the writer is no mathematical genius no attempt has been made to convert to metric figures).

Natural Fibre Rope

Square the circumference and the result will be the SWL expressed in hundred-weights:

e.g.: 2" x 2" equals 4cwt.

Artificial Fibre Rope

Calculate one sixth of the manufacturers stated Breaking Strain. e.g.: Donaghy's 16 mm Nylon — B.S. equals 5300kg, divided by one sixth we get 883kg SWL.

SOME RECOMMENDATIONS ON SAFETY

When working in a hazardous situation, be it a building under construction/demolition, a cliff rescue, rail or aircraft crash, on standby at major fires etc.; protect yourself, WEAR A SAFETY HELMET & SUITABLE PROTECTIVE CLOTHING WHERE AVAILABLE. Also work in pairs wherever possible.

If there is a danger of rescuers slipping or falling any appreciable distance insist on the use of safety lines, if used correctly these need not restrict movement unduly.

Patients being carried over rough terrain for long distances should be secured to stretchers with safety harness, Scoop stretcher straps, Manifold harness, Improvised harness using short lines etc.

It should also be noted that any knot, whilst increasing the effective use of a rope will also DECREASE the strength of that rope. NOT MORE THAN 50% STRENGTH SHOULD BE EXPECTED.

When the strand surfaces of a rope are smooth the frictional forces involved in bending are reduced and the knot opens more readily.

A badly tied knot can and will slip under shock loading, thus a knot should always be tied tightly with a good tail to help prevent slipping under load and a half hitch added to help prevent deformation.

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BOOK REVIEW

TITLE

Structure and Function of the Human Body. Second edition.

AUTHORS:

R. L. Memmler M.D./D.L. Wood R.N., B.S., P.H.N.

PUBLISHER:

J. P. Lippincott Company Ltd., Philadelphia 1977.

PRICE:

Approximately \$7.30.

There are circulating at the present time a large number of Anatomy and Physiology books. Many of these books give excellent commentaries and descriptions of the function and structure of the human body, but their texts are directed more towards the requirements of the medical schools. There are, however, a few that are very suitable for the ambulance officers' requirements. One of these is the subject of this review.

The text is kept to a good basic level, and yet goes into sufficient depth for those who wish to engage in further study. At the completion of each chapter there is a chapter summary and a question and problem section. Medical terminology is in heavy print with the pronunciation given. The book is further enhanced by excellent colour diagrams. These diagrams are one of the outstanding features of this book.

TITLE

Emergency, Care and Transportation of the Sick and injured.

AUTHORS:

The Committee on Allied Health
American Academy of Orthopaedic Surgeons

PUBLISHER:

George Banta Co.

PRICE:

Approximately \$10.40.

This is an excellent general text book on Ambulance Aid for all grades of Ambulance. Officers. Some subjects covered are:—

- (a) Anatomy, diagnostic signs, triage.
- (b) Basic life support including chest injuries, control of haemorrhage, shock, oxygen therapy.
- (c) Musculo skeletal system including soft tissue injuries, fractures, dislocations and sprains, principles of splinting, spinal injuries.
- (d) The head and nervous system and associated injuries.
- (e) Medical emergencies.
- (f) Environmental injuries, including heat and cold exposure, radiation and electrical hazards, poisons, stings and bites, emergency vehicles and equipment, patient handling and extrication.

Subjects are covered in considerable depths and are strictly orientated to the Ambulance Officer. For those who wish to engage in a self study programme a work book for Emergency Care and Transportation of the Sick and Injured is available.

TITLE:

Aids to Medicine for nurses.

AUTHOR:

J. L. Burton B.Sc., M.D., M.R.C.P.

PUBLISHER:

Churchill Livingstone 1977.

PRICE:

Approximately \$4.25.

This book is not a dictionary or encyclopaedia, it is rather a compilation of medical facts which would be especially suited to those who are involved in advanced care or wish to further their understanding of medical subjects.

The medical facts are set out under their appropriate body systems. For example, under the cardio-vascular system are listed facts about the pulse. Normal rates, abnormal rates and their various causes, terms relating to pulse rhythms and their defunctioning, e.g. pulse deficit, sinus arrhythmias. Factors involved in determining the character or quality of the pulse, e.g. volume, tension, pulse wave, etc.



Personal Notes

FROM AROUND THE COUNTRY

Congratulations to Mr. Ian Dunn, of the Auckland St John Ambulance Association, on his promotion to Deputy General Manager of the Auckland Service.



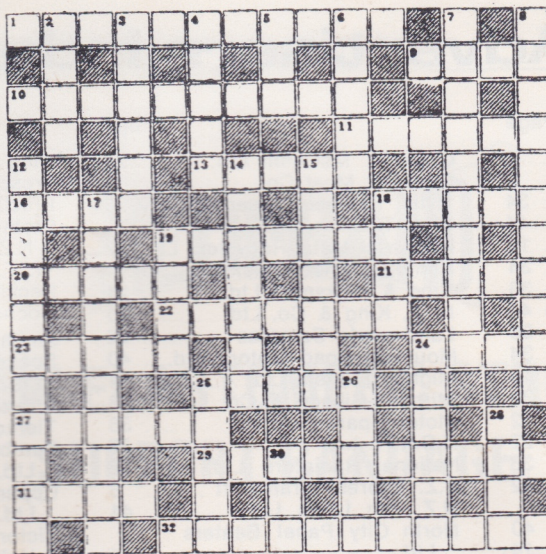
Best wishes also to Murray Hawkings of Morrinsville who was recently married.



Finally — Confidence is that certain feeling you have before you know better.



From time to time we plan to include in the News Letter an "in depth" study on some aspect of Anatomy or Physiology. The study this month is on the process of internal respiration, and reprinted from Ambulance Journal, the official organ of the Ambulance Service Institute, G.B.



NEVER A CROSS-WORD

ACROSS

- 1 Intravenous infusion not requiring grouping and cross-matching (5,6)
- 9 Desplicable part of the skull (4)
- 10 Severe colic occurs if it enters a ureter (5,5)
- 11 Pour off the liquid from one of 16 across after a month (6)
- 13 Ejects from the mouth (5)
- 16 Insects with an irritating bite (4)
- 18 Fellow twisted coil for acid used in treatment of some types of anaemia (5)
- 19 Sell cap for surgical knife (7)
- 20 Having a nimble, active body (5)
- 21 Was this old gold coin money from heaven? (5)
- 22 Eastern beast of burden back to King Arthur's city (7)
- 23 Visited habitually by ghosts? (5)
- 24 Care badly for the breed (4)
- 25 Vaso-vagal attack (5)
- 27 Red ear for you, my friend (6)
- 29 Drug preventing proliferation of micro-organisms in the body (10)
- 31 Mainy Irish part of the eye (4)
- 32 Muscles such as the diaphragm and intercostals (11)

DOWN

- 2 Legal right for the spleen (4)
- 3 Harangues the crowd or eats strangely (6)
- 4 Steps to annoying creatures (5)
- 5 Great fuss in head office (3)
- 6 Just rewards (5)
- 7 Paralysis of the lower part of the body (10)
- 8 Lesion of the parts of the alimentary tract exposed to gastric juice (6,5)
- 12 One of glands controlling calcium metabolism (11)
- 14 Invasion of blood stream by pus-forming organisms (7)
- 15 The caecum (7)
- 17 Hair-cut oil provides drug used in treatment of hyperthyroidism (10)
- 18 Home for bones such as the scapulae, ribs, and those of the skull (4)
- 19 Set including 100 members of religious group (4)
- 24 Statement of the condition of the patients in the ward makes a loud bang (6)
- 25 Skeleton has broken arm in iron surround (5)
- 26 The potato, for example (5)
- 28 Jetty ripe for modification (4)
- 30 Withdraw fluid from a body cavity (3)

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Some Thoughts on Thinking

We think we are thinking, when in reality we are only re-arranging our thinking.

C. T. Johnson

Why is a clever person wise? Because he knows what to do. Why is a stupid person foolish? Because he only thinks he knows.

Proverbs 14 : 3,8

"I think" is the most overworked and the most exaggerated expression in the English language.

If I can give a man a thought, I've helped him, but if I can make him think I've done him a service.

Elbert Hubbard

Most folk have presence of mind; the trouble is absence of thought.

Howard Newton

AS WISE AS SOLOMON

A fool's pride makes him talk too much; a wise man's words protect him.

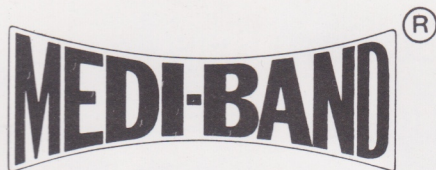
SOLUTION TO CROSSWORD

ACROSS

1 Blood plasma; 9 Base; 10 Renal stone; 11 Dec-ant; 13 Spits; 16 Ants; 18 F-olic; 19 Scalpel; 20 Agile; 21 Angel; 22 Camelot; 23 Haunt; 24 Race; 25 Faint; 27 Reader; 29 Antibiotic; 31 Iris; 32 Respiratory.

DOWN

2 Lien; 3 Orates; 4 Pests; 5 Ad-o; 6 Meeds; 7 Paraplegia; 8 Peptic ulcer; 12 Parathyroid; 14 Pyaemia; 15 Typhlon; 17 Thiouracil; 18 Flat; 19 Se-c-t; 24 Report; 25 F-ram-e; 26 Tuber; 28 Pier 30 Tap.



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